

Chapter 3

An assessment of the contract farming system in improving market access for smallholder poultry farmers in Bangladesh

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3.1 INTRODUCTION

The poultry subsector is an important means of fostering agricultural growth and reducing malnutrition for the people of Bangladesh. Poultry meat contributes 37 percent of total meat production and 22 to 27 percent of the total animal protein supply in the country (FAO, 2003). The subsector has proved to be an attractive economic activity, accounting for 14 percent of the total value of livestock output and it is growing rapidly (Raihan and Mahmud, 2008). From 1970 to 1980, the poultry population growth rate was 0.7 percent, which increased to 4 percent per year from 1990 to 2005 (Begum, 2008). The current market is worth US\$1 billion, with about 150 000 small and medium enterprises, and the sector employs nearly five million people directly or indirectly (The Poultry Site.com, 2007).

Although meat production has been increasing over time, the per capita availability (2.92 kg/year) is far below the minimum requirement (7.67 kg/year) (Begum, 2008). Moreover, local scavenging chickens dominate poultry production (86 percent), while the remaining 14 percent of meat comes from commercial farming systems – 90 percent from small-scale commercial farms and only 10 percent from large-scale farms (BBS, 2005). Huque and Stem (1993) found that small farmers in Bangladesh produced about 96 percent of eggs and 98 percent of chicken meat. This situation has not changed significantly since their findings.

Despite the contribution of the poultry subsector to the economy and livelihoods of small farmers, the production system is not adequately market oriented. Considerable obstacles need to be overcome before small farmers can obtain remunerative prices and profits from poultry production. This chapter explores ways to link small farmers with commercial poultry production systems and evaluate whether contract farming (CF) could improve market access for smallholder poultry farmers in Bangladesh.

The chapter is organized as follows. Section 2 gives an overview of the current poultry production and input-output marketing system in Bangladesh. A case study of CF in the Bangladesh poultry sector is discussed in Section 3. Section 4 discusses the effectiveness of CF in promoting smallholders' access to modern marketing channels, followed by a discussion of external factors in Section 5. Section 6 draws policy implications and conclusions.

3.2 OVERVIEW OF CURRENT POULTRY PRODUCTION AND MARKETING SYSTEM

3.2.1 Existing poultry production system

Poultry farming in Bangladesh can be broadly divided into two systems: (i) traditional rural backyard or scavenging system; and (ii) commercial system. In the first, several or up to 60 domesticated fowl are maintained either as a hobby or for non-commercial egg and meat production. These chickens roam in and around the farmer's homestead area which fulfils a major part of their feed requirements. The second system relates to farms that have more than 200 domesticated fowl maintained primarily for commercial egg and meat production, with housing, management and marketing facilities. Operationally, small-scale commercial producers in Bangladesh refer to those having fewer than 5 000 birds in each batch, whereas large-scale producers have more than this number. Most poultry farms in Bangladesh are in the small-scale commercial farm category.

3.2.2 Marketing system for poultry products

Transformation from backyard to commercial farming not only resulted from technological progress and sector development policy but also from institutional innovations in input delivery and marketing of outputs. The expansion of the commercial poultry sector has resulted in a decline in real prices of poultry products and consumption has consequently increased (Begum *et al.*, 2012). The marketing system for poultry products is not yet well organized. Up to now, broilers have been sold as live birds on a weight basis and table eggs bargained for on the basis of 100 egg-lots.

Day-old chicks

Of the 120 hatcheries in the country, at present only 50 are fully functional – others are either partially operating or are temporarily closed. Fifty percent are located in areas where concentration of poultry farms is the highest and approximately 56 percent are involved in the production of day-old chicks (DOCs) from parent stock. Eleven are government owned (Saleque, 1999). The main hatcheries in Bangladesh are totally dependent on the import of parent stock from the United States of America, the Netherlands, France and Germany, among others. These foreign strains are sensitive to temperature, nutrition and management and, as a result, their productive performance in Bangladesh varies widely. However, buyers and sellers use strains of breeding stock as the main criteria to differentiate products.

Hatcheries use different brand names for broiler DOCs and some have established good relations with buyers by providing quality DOCs, which has established differentiated products in practice. Hatchery owners set the price of DOCs independently but also consider the reaction of competitors in the market.

The price of DOCs varies from month to month. For example, during 2010, the price of broiler DOCs varied from 18 to 75 taka¹, and layer DOCs from 12 to 75 taka (Chowdhury, 2011). There is no bargaining between buyers and sellers of DOCs at any point in the supply chain, since the market is basically supply driven. DOCs are usually sold in cash at a fixed price to farm owners and agents, but with a commission to agents. Hatchery owners sell the DOCs at the hatchery or through their sales centres directly or through sales agents to the poultry farmers. DOCs are usually packed in paper boxes or bamboo baskets. A few hatcheries use their own or hired trucks to transport DOCs from the hatchery to the sales centres or agents. Mostly, however, poultry farmers do not transport DOCs by specialized vehicles but use buses, rickshaws or vans, which is hazardous and increases the likelihood of chick mortality.

Poultry feed

One of the major problems in the development of the poultry subsector in Bangladesh is the lack of sufficient and appropriate feed (Mitchell, 1997). Both manufactured and mixed ingredient feeds are used in the subsector. The manufactured feeds of different feed mills available are not homogeneous in nature. The manufacturers differentiate poultry feeds based on quality, brand name, sales promotion and packaging. The marketing chain for feed is also different. Some feed manufacturers distribute feeds through agents, others use wholesalers and retailers, while others have their own sales centres. Taking into account market competition, feed millers set the price of feeds independently. They usually set the prices for wholesalers and commission agents (*aratdars*), giving little scope for bargaining, except that the commission rates may vary according to the volume of feed purchased. The millers usually promote their products through advertising and providing quality assurance and incentives such as differential commissions to wholesalers; some millers also provide incentives to farmers. Generally, feed manufacturers do fix prices for wholesalers, who sell feed in both cash and credit to retailers and farmers. Feed is a major cost in broiler production and accounts for 45–60 percent of total broiler production costs in Bangladesh (Begum, 2008; Sultana, 2009). In setting prices, some wholesalers charge a fixed margin on the total cost of feed marketed and others add a certain percentage of total costs as profit. The price of feed varies from brand to brand. For example, during 2010, broiler feed price per tonne varied from 30 000 to 32 000 taka, and layer feed from 24 000 to 27 000 taka (Chowdhury, 2011).

Most feed ingredients such as maize, meat bone meal, soybean meal and protein concentrate are imported and therefore sensitive to the movement in world prices. Poultry feed is mainly imported from Germany, China, Thailand, India and Taiwan Province of China. The exact number of feed mills in operation at present is not known, although it has been estimated that there are some 35 feed mills owned and operated by 850 dealers in the private sector that are producing and distributing poultry feed in the country. Nevertheless, production does not meet demand and distribution in rural areas is inadequate.

¹ Local currency (US\$1 = 81 taka) (Bangladesh Bank, 2013).

Veterinary drugs

The mortality rate of poultry is high (35–40 percent) because of disease and predators. Poultry farmers usually carry out vaccination and medication for common poultry diseases (Newcastle, fowl pox, fowl cholera, fowl typhoid, coccidiosis, Gumboro). Although the government gives some necessary vaccines at low cost to help farmers, they nearly always urgently need to buy vaccines at high prices on the open market. However, vaccines are not regularly available throughout the country, especially in remote rural areas. Vaccination failure is common because of improper transportation and storage, handling and application. Most poultry farmers use vaccines without knowing the maternal antibody status of their flocks. The marketing chain for drugs is simply composed of the pharmaceutical companies that distribute drugs to the wholesalers, the wholesalers themselves and the retailers that purchase drugs from wholesalers and sell to poultry farmers.

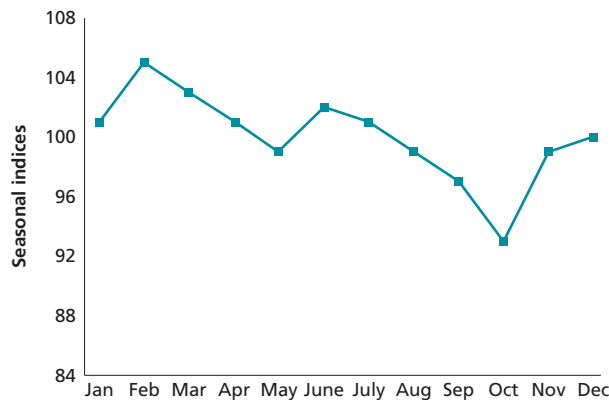
From the above discussion, it is clear that the poultry sector in Bangladesh is plagued with multifarious problems, including high input prices. Production risk is another leading problem. This mainly occurs in broiler farming through death or loss of birds. Outbreak of disease also causes considerable economic loss and erodes confidence in poultry farming. For example, Gumboro and Newcastle are both epidemic diseases and cause major losses. Apart from production-oriented problems, another main factor obstructing growth in the poultry sector is the lack of an efficient marketing chain, i.e. collection, storage, processing and marketing of poultry products. Farmers also face marketing problems. Previous research studies have emphasized that the main production-oriented problems faced by commercial poultry farms are lack of capital; inadequate knowledge of poultry rearing; outbreak of diseases; inadequate availability of inputs; inadequate institutional credit; and lack of guaranteed and profitable markets for outputs (Karim and Mainuddin, 1983; Ahmed, 1985; Haque, 1985; Islam and Shahidullah, 1989; Ukil and Paul, 1992; Bhuiyan, 1999; Uddin, 1999; Begum, 2005; Begum and Alam, 2005; Begum, Osanami and Kondo, 2005).

3.2.3 Poultry output price and marketing channels

Poultry outputs, particularly broilers, are live products. Therefore, if farmers fail to sell them at the right time, they face great losses. Thus, the biological nature of broilers is one of the most important causes of output price instability. Broilers are sensitive and cannot be stored for long without proper storage facilities, so they must be sold immediately. Moreover, market prices can fluctuate. Prices observed overtime are the results of seasonal patterns of change. Measuring seasonal variation is necessary to ascertain the short-term fluctuations in time series data. Average monthly wholesale prices of 1–1.5 kg poultry in the Dhaka market were used to measure seasonal price variations. Data were collected from the Department of Agricultural Marketing (DAM) and covered the period from January 1992 to December 2010. The ratio-to-moving average method was used in this study to measure seasonal variations. Figure 3.1 depicts the seasonal indices. As shown, poultry prices in February are 105 percent of those of the average month, the typical October price is 93 percent of those of the average month, and so on.

Poultry marketing channels are traditional marketing systems where the number of intermediaries is high (Figure 3.2). Consequently, farmers are sometimes forced to sell at lower prices because of inadequate market information, transport facilities,

FIGURE 3.1
Poultry seasonal price fluctuations in the Dhaka market from 1992 to 2010

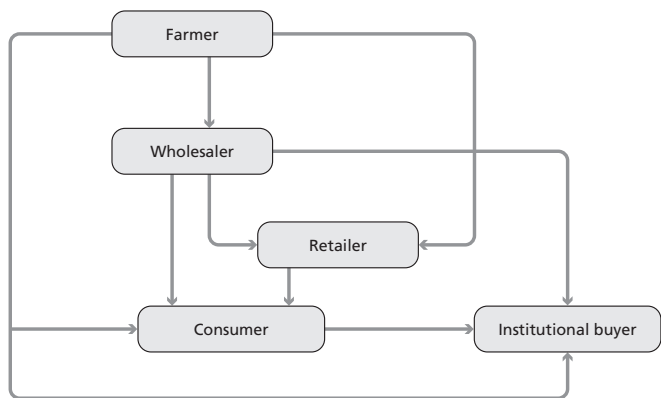


Source: Directorate of Agricultural Marketing (DAM), 2011.

etc. Moreover, price spread is higher so that the prices received by farmers are not always remunerative. Chand *et al.* (2009) showed that, in 2009, cost of DOCs was 38 taka and production cost per bird was 94 taka, but because of price fluctuations farmers had to sell mature birds at 80–100 kg at the farmgate.

From the above, it is clear that poultry input markets are not competitive and demand/supply imbalance is a barrier to smooth functioning of the market, implying that the commercial poultry sector is not well organized in Bangladesh.

FIGURE 3.2
Marketing channels of poultry products



Source: Begum, 2008.

Nevertheless, modern technology seems appropriate for transfer to remote and small rural villages in Bangladesh, although successful transformation of this technology throughout the sector requires institutional support, particularly for poor and small farmers, to facilitate greater market access. This form of support has been changing dramatically in relation to the procurement practices, specifications and standard requirements of the various stakeholders (e.g. food manufacturers, wholesalers/exporters and retailers) up to final consumers. CF is an institutional initiative that could play an important role in mediating and bridging these issues/limitations that are largely out of reach of small-scale poultry farmers.

3.3 CONTRACT FARMING IN THE BANGLADESH POULTRY SECTOR

Contract farming offers several potential advantages over independent farming. It has been proposed as an important means for private farms to take over the role previously assumed by the state in the provision of information, inputs and credit (World Bank, 2001). It is the context of the contract that makes a difference, since there are many actors and factors in the environment influencing how the contract works and its outcome. The way farmers perceive CF defines their relationship with companies and differs widely across cultures (Asano-Tamanoi, 1988). In fact, there is so much diversity in farms, farmers, nature of contracts and socio-economic environments that it is better to focus on a specific situation than on the generic institution of CF. As CF in poultry production is a relatively new concept in Bangladesh, the pioneer company's profile and contractual agreements need to be reviewed.

The CF poultry system in Bangladesh was initiated by a large multipurpose company called Aftab Bohumukhi Farms Ltd (ABFL). Besides ABFL, other Non-governmental Organizations (NGOs) such as BRAC² and PROSHIKA³ have come forward to support rural people by providing in-kind inputs or cash, by establishing CF and running small-scale poultry farms.

ABFL is one of the leading poultry farms in Bangladesh and was set up in 1991 at Bhagalpur in Kishoregonj district, about 110 km northeast of Dhaka. It is one of the subsidiary companies of the Islam group, predominantly engaged in the agricultural sector. ABFL first introduced CF for commercial broilers as an experimental extension programme for a selected group of 20 farmers who entered into a CF agreement with ABFL on the production and marketing of broiler products.

ABFL is different from integrated farms in other countries because it started as an agrobased farm and tends to include small farmers in its activities associated with poultry, dairy and agroservices. A key objective of the firm is to generate income for farmers and help look after their interests. As a result, ABFL includes all categories of farms, according to land size, in its contractual agreements.

In 1994, to develop the poultry farming system as an income-generating activity and enlist scientific and professional support, ABFL initiated an elaborate CF programme involving rural people. ABFL has its own feed mill and hatchery. The farm

² BRAC is the largest NGO in Bangladesh and uses poultry as one of many tools for poverty alleviation. It was involved with the Directorate of Livestock Services (DLS) in developing the semi-scavenging poultry model suitable for poor women.

³ A large NGO with a livestock programme that includes work with poultry.

consists of a modern hatchery that produces 60 000 broiler and layer parent birds and supplies 100 000 DOCs per week for the fast growing poultry industry. The farm also has commercial facilities to supply eggs and poultry meat to consumers in Dhaka through conveniently located sales centres. The ABFL poultry complex is one of the largest in the country. Its feed mill was established primarily to provide balanced feed for the ABFL contract poultry farm, and was later expanded to meet the demand for poultry feed throughout the country. At present, ABFL has three feed mills with a capacity of 10 000 tonnes/month and distributes balanced feed to farms throughout the country using its own distribution system.

The nuances of the term “contract” in broiler production may vary from country to country and according to the nature of the integrator company. The agreements

TABLE 3.1

Salient features of ABFL contract arrangements in Bangladesh

1. Company name	Aftab Bohumukhi Farms Ltd
2. Company type	Private limited company
3. Products/services	<ul style="list-style-type: none"> ▪ Commercial, live, dressed broilers ▪ Parent stock
4. Form of contract arrangement handled (to 2003)	Formal input-output (credit)
5. Form of contract arrangement handled (2004–2013)	Formal input-output (cash)
6. Backward linkage activities for contracted products/services	
(i) Package of inputs/services	<ul style="list-style-type: none"> i) Day-old chicks ii) Feed iii) Veterinary and medical services iv) Cash loans for operational expenses
(ii) Number of contract farmers (in 2003)	<ul style="list-style-type: none"> i) Commercial broilers: 560 farmers ii) Parent stock: 122 farmers
(iii) Geographic locations covered	Only Kishoregonj district
(iv) Volume of inputs/products delivered per month	<ul style="list-style-type: none"> i) Commercial broilers: feed 100 tonnes/ month ii) Parent stock: feed 1 000 tonnes/month
(v) Value of inputs/services delivered per month	<ul style="list-style-type: none"> i) Commercial broilers: 50 000 000 taka ii) Parent stock: 175 000 000 taka
7. Forward linkage activities for contracted products/outputs/services	
(i) Outputs/services	Own sales centre for dressed broilers, dealers for feed and chickens
(ii) Criteria for selecting contract farmers	All farmers in company area
(iii) Approximate market share of the company	10 percent for chicks
8. Provision for enforcement of contract	Mostly informal and social
9. System of ensuring product quality	Inspection, supervision, laboratory tests

Source: Begum, 2008.

between ABFL and farmers are extremely simple. Any farmer located in the company area is eligible to enter into a contractual agreement.

The responsibilities of the contract farmer and ABFL in the vertically integrated farming system are shown in Table 3.1.

According to the agreements, ABFL extends credit facilities to farmers; provides DOCs, feed and in-kind veterinary supplies on credit; and implements final marketing of outputs. Feed and other inputs supplied by the contractor represent over 90 percent of total production costs, which means that farmers only pay 10 percent of annual average cost. Farmers build covered sheds at their own expense, ensuring a congenial and healthy environment for proper growth of the birds under the direct supervision of the ABFL experts. The average duration of the maturation cycle is five to seven weeks for a 1.5 kg broiler. ABFL buys mature broilers from the contract farmers by paying a fixed price per kg of live broiler and then markets these broilers at the ABFL sales centres in Dhaka. All credit liability of contract farmers is adjusted against the price of their products. In this way, farmers obtain financial support from the integrator with no interest and are able to run their business smoothly. However, the number of birds per batch to be reared and any managerial decisions to be made are taken by the farmers themselves. The vertical stages of the ABFL broiler CF system are shown in Figure 3.3.

Since ABFL incurred losses of nearly 150 million taka because of the bird flu outbreak in 2003, it subsequently changed its contractual agreement from credit to cash for inputs provided to farmers (i.e. DOCs, feed and veterinary supplies). However contract farmers still benefit from incentives because ABFL charges only wholesale prices for these inputs, which are significantly less than the market retail price.

FIGURE 3.3

The vertical stages of ABFL broiler contract farming

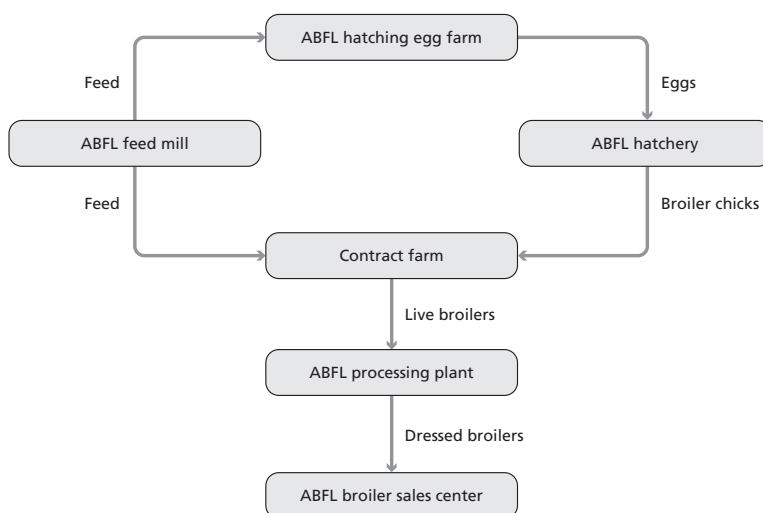


TABLE 3.2
ABFL's poultry insurance scheme

Premium	Claim	
	Mortality rate	Refund
1.50 taka per bird	0–3 percent	80 percent premium
	4–6 percent	40 percent premium
	7–10 percent	20 percent premium
	11–15 percent	10 percent premium
	Above 15 percent	20 taka per bird
	Within 20 days, deducting 15 percent	
	After 20 days, deducting 15 percent	30 taka per bird

Source: Begum, 2008.

Although ABFL began with 20 farmers under contract in 1994, and reached 650 in 2003, the number of contract farms slumped to 200 after the bird flu outbreak, then subsequently began increasing again after 2004. Begum (2008) calculated profit gain per bird from contract and independent broiler farming systems after the change in the contractual agreement, and found that even then, the contract farms made higher profits and had better incomes than independent farms.

Two risks exist in poultry production – production risk and price risk. Numerous CF studies have emphasized risk reduction as a principal incentive for producers to enter into contracts (Roy, 1972; Covey and Stennis, 1985; Dornbush and Boehlje, 1988; Herbert and Jacobs, 1988; Lawrence and Kaylen, 1990; Johnson and Foster, 1994; Knoeber and Thurman, 1995). There have been varying degrees of success over the years, across countries, with several types of insurance programmes (Hazell, Pomerada and Valdes, 1986; Hueth and Furtan, 1994; Mishra, 1996). ABFL is the only farm in Bangladesh to have introduced an internal insurance scheme to cover the risk of loss for contract farmers in the case of immature death of chicks through disease, etc. In the contractual agreement, payment to ABFL's growers depends upon production outcomes and not upon price outcomes so that farmers avoid price risks. ABFL's contract growers are free from production risks since the integrator provides technical assistance and insurance. ABFL's insurance scheme operates a contributory security fund. Farmers contribute 1.50 taka per chick to the fund at the time of purchase. For a certain percentage of chick mortality, a portion of the initial contribution or risk premium is refunded. For example, if chick mortality is less than 3, 4–6, 7–10 percent and 11–15 percent, then 80, 40, 20 and 10 percent of the contribution respectively is refunded to farmers. If the mortality rate is above 15 percent, farmers can claim full insurance compensation. In this case, for birds up to 20 days old, 20 taka is paid per bird after deducting 15 percent from the total number of birds lost. For birds more than 20 days old, 30 taka is paid per bird after calculating the benefits from birds up to 20 days old (Table 3.2). This means that lower mortality rates lead to higher rates of refunds on the premium, but higher (over 15 percent) mortality leads to full compensation for losses. Because of this measure, farmers feel secure and are encouraged to take up the CF option.

Integrators also face the above production and price risks in addition to anxieties about side-selling or extra-contractual marketing. Although disputes are apparently rare, any problems are generally settled through mutual negotiation between the affected parties.

3.4 EFFECTIVENESS OF CONTRACT FARMING IN PROMOTING SMALLHOLDERS' ACCESS TO MODERN MARKET CHANNELS

In an era of market liberalization, globalization and expanding agribusiness, there is a danger that small farmers may face difficulties in participating successfully in markets. Evidence suggests that in many countries these farmers could become marginalized as larger farms are targeted for more profitable operations. As in many developing countries, it is necessary to discover whether the benefits of CF reach small farmers in Bangladesh or not.

In many developing countries, small poultry farms play a central role in sectoral development. The main constraints of small-scale farmers are access to resources and markets.

- Small farmers often lack necessary production and marketing information.
- Small farmers may lack sufficient savings and the availability of external credit is limited because of bureaucratic complexities.
- Small farmers operate near subsistence level and are more risk averse than large farmers.
- Public intervention (such as public extension services and policies) to promote commercial poultry production has had greater impact on large farmers than on small farmers.

In the interests of both efficiency and equity, CF could be a viable institutional mechanism to facilitate small poultry farmers' access to credit, technical assistance and inputs, and reduce uncertainty in the marketing of outputs. If CF could be developed and policy biases towards large-scale commercialization reduced, then small farmers would be able to raise their incomes by adopting poultry farming as a main or subsidiary occupation.

One of the main reasons for involving small farmers in CF is that in developing countries the integrated farm faces difficulties in finding enough farmers to produce the quantities it requires. Moreover, large farmers sometimes try to break the contract rule. As economies of scale are associated with adoption of specialized technology, a vertically integrated farm usually tries to involve few large farms in its production and distribution system. However, CF has been a component of the most successful income-generating projects for small farmers in developing countries. Key and Runsten (1999) studied CF with reference to smallholder and rural development in Latin America. The study shows how CF functions as an economic institution and explores the causes of observed variation in the scale of outgrowers' production in the region. Ralston Purina, a feed company, became involved in contracting in the late 1950s, as growers became less able to handle market risks. Its contracts guaranteed growers a minimum return. Later, processors were brought into the vertically coordinated structure (Marion and Arthur, 1973).

Nevertheless, evidence from other countries suggests that the vast majority of CF schemes exclude small farmers (Singh, 2000). Capital-intensive large farms make

small farmers' entry into the contracting system difficult because of high transaction costs and economies of scale. The number of poultry farms decreased in developed countries such as Japan, the United States of America and Canada after the introduction of the vertically integrated contract farming system. In the mid-1990s, 80 percent of poultry production in Thailand came from only ten large companies (World Bank, 2001).

In Bangladesh, as noted, ABFL is different from integrated farms in other countries because it began as an agrobased farm and included all categories of farms, according to land size, in its CF system. There was possibly no special consideration for small farms but they were included so long as other requirements for poultry farming were met. Unlike vertically integrated farms in developed countries where large trading companies usually prefer contracts with large-scale farms to minimize transaction costs, ABFL has tried to be inclusive. One of its key objectives is to increase the incomes and improve the welfare of small farmers in the area around its headquarters. This may partly be motivated by the fact that the owner of the Islam group, of which ABFL is a subsidiary, comes from the locality, so any contribution to the well-being of the local people through his business ventures serves as both a financial and welfare objective.

Small farmers hold a strategic position in the economy of Bangladesh. They have limited working capital but they can provide abundant disguised family labour in the farming system. Although ABFL started with small farmers in its operation, it realized for two reasons that it is in its interests to contract large farms as well. First, because it encountered difficulties in finding enough farmers to produce the poultry needed. Second, the Government of Bangladesh restricted large-scale poultry farms by licensing to protect the small farmer. Begum (2008) found that ABFL's CF system is based upon the economic development of small farmers. Of 560 farms, about 93 percent were classified as small farms (with less than 2.5 acres/1 ha of land). By considering poultry flock size, of the 560 farms, 201 farms reared up to 1 200 birds/batch, 281 farms reared 1 201 to 2 000 birds/batch and only 78 farms reared more than 2 001 birds/batch. If the official classification of large farms (i.e. more than 5 000 birds/batch) is considered, then only three of the total 560 contract farms can be designated as large farms in the study area.

3.4.1 Smallholders' benefits from contract farming

Contract farming provides benefits to both the integrator farm and the contract farmers. The integrator farm guarantees a regular supply of raw materials while small farmers have access to a ready market for their products. Benefits from contract participation include improved market access, access to credit and technology, better risk management, improved family employment and, indirectly, development of a successful commercial farming system.

Contract farming and market access for smallholders

Small farmers in Bangladesh are generally unable to take advantage of market opportunities and often have trouble accessing credit, obtaining information on market opportunities or new technologies, purchasing inputs and accessing output-assured markets with fair prices. When markets are accessible, farmers may be subjected to price fluctuations or inequitable prices. For farmers, technical constraints in turn-

ing from scavenging-poultry farming to commercial poultry production are less daunting than market constraints. Therefore, one of the principal motivations for smallholders to enter into CF is having an assured market with favourable prices. Comparing the conventional and contracting systems, the marketing channel of the conventional one is more complex. In the contracting system, farmers sell their poultry directly to the integrator, which helps to reduce the transaction costs associated with searching, collecting market information, negotiation, etc. It also establishes the necessary backward and forward linkage, provides all marketing facilities, and increases producers' prices.

Contract farming, productivity and profitability differences

Contract farming generally implies that small farmers receive benefits from contracts in terms of enhanced net return. Begum (2008) showed that the difference in poultry production output between contract and non-contract farmers is statistically significant. Output for contract farmers (11 783kg/year) is much higher than that of non-contract farmers (6 763 kg/year). Productivity of labour is also higher. The profitability of poultry farming was measured in terms of gross margin and net profit. Begum estimated net return gain per bird for the two farming systems. The gross margin and net return (18.2 taka and 17.2 taka, respectively) of contract farms are again much higher than those of independent farms (12.9 taka and 10.0 taka, respectively). In spite of these differences, both systems operate profitably.

Contract farming and efficiency differences

Contract farming is significantly related to farming efficiency. Begum *et al.* (2012) determined the level of technical, allocative and economic efficiency of commercial and independent poultry farmers. They also identified efficiency factors by examining the relationship between efficiency level and possible socio-economic factors. The study found the technical, allocative and economic efficiency of the non-contract farms to be 91, 89, and 81 percent, respectively, below that of contract farms (96, 98 and 94 percent, respectively). CF is more efficient, which might be expected because under contractual agreement, in order to obtain sufficient supplies of the right quality of poultry meat at the right time, ABFL provides technical assistance, production inputs and production credit.

Contract farming and income differences

Begum (2008) compared non-contract and contract poultry farm income with a non-poultry farm income. The average gross income of the non-poultry farm was 107 121 taka per year whereas the non-contract and contract poultry farm earned 76 653 and 127 833 taka per year, respectively, only from poultry enterprises. Contract farmers satisfied 55 percent of their total income from poultry production. The study concluded that if small farms enter into the CF system, they obtain substantial income gains.

Contract farming and risk reduction

Increased incomes in CF are generally accompanied by reduced price risks for farmers. Risk and uncertainty are quite common in the poultry business. Small farmers have little access to information and may face the risk of losing substantial

income if prices fluctuate downwards. With CF, a predetermined price for poultry is established during contract negotiations. Firms typically purchase products with the specified quality and quantity in accordance with the contract, and farmers are not subjected to the risks of sales losses through price fluctuations. The provision of insurance for farmers as an embedded service within the contract further reduces both price and production risks.

Contract farming and production capacity utilization

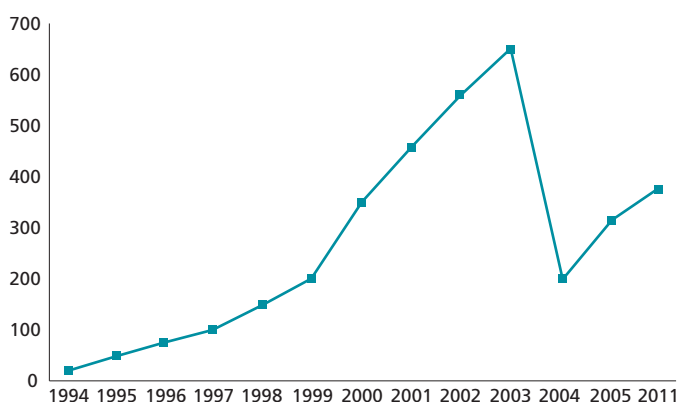
Contract farming can utilize production capacity more efficiently than non-contract farming. Begum (2007) found that, because of a lack of capital, non-contract farmers sometimes fail to rear the same amount of birds in every batch. If these farmers were to utilize the average maximum bird-rearing capacity per batch, then the average number of birds reared per year would be 8 239, yet only 4 251 birds (i.e. 51.5 percent of full capacity) were reared. In the case of the contract farms, the relevant figures are 10 466 birds, but 9 179 birds (i.e. 87.7 percent of full capacity) were reared.

Begum (2008) estimated that, even after bird flu, the net return per bird of contract farms is 1.4 times higher than that of independent farms.

As already noted, ABFL began with 20 farmers in 1994, reaching 650 in 2003 but, after the bird flu outbreak, in 2004 its contract farms slumped to 200. They subsequently increased to 315 in 2005 and 375 in 2011 (Figure 3.4). Small farmers began taking an interest in contract poultry farming because of its profitability.

It can be concluded that contract farming plays a major role in small farmer development. Existing rural credit institutions such as agricultural banks in Bangladesh do not have many of the features of ABFL's CF system, such as collateral-free input loans, assistance with access to input and product markets, opportunity to obtain technical expertise and supervised credit. CF is undoubtedly an effective way of producing quality poultry and this is substantiated in much of the literature.

FIGURE 3.4
ABFL contract farms from 1994 to 2011



Source: Begum, 2008.

3.4.2 Integrator's benefits from contract farming

Vertically integrated CF will be sustainable in the long term if both parties (integrator and contract farmers) benefit from the contract system. Begum (2008) showed how poultry farming is also profitable from the perspective of the integrator. In the study period, ABFL bought birds from the contract farmers at 52.5 taka per kg and sold them to its sales centre at 85.05 taka per kg. The gross revenue was 32.5 taka per kg. However, ABFL's cost elements include credit, input supply, staff hire, etc., which could be substantial, but cannot be estimated with accuracy. Therefore, 32.5 taka per kg was taken as ABFL's per bird gross return, not net return or profit.

3.5 EXTERNAL FACTORS ASSOCIATED WITH CONTRACT FARMING

There are good reasons for expanding CF, although concrete evidence of its benefits to smallholders is mixed. CF in developing countries has experienced mixed fortunes. Positive views maintain that contracts are a viable mechanism for incorporating small farmers into dynamic modern markets, in terms of substituting failing markets for credit, insurance, information; production factors; product outlets; and of diminishing transaction costs and enhancing technology transfer (Glover, 1984; Grosh, 1994; Key and Runsten, 1999). Conversely, other authors warn about certain undesirable welfare effects for smallholders (Wilson, 1986; Rickson and Burch, 1996).

However, like many developing countries, Bangladesh lacks the laws and legal framework to support contractual agreements. Agreements at times may not be easily enforceable or even legally binding. Since prices specified in contracts are based on expectations about future market behaviour, substantial variations in the realization of the expectation can lead farms to engage in contractual holdup. For example, the Bangladesh poultry sector was badly affected during the bird flu outbreak and prices varied significantly as a result. Since an effective enforcement mechanism was absent, poultry farmers could do nothing to avoid the negative impact. The integrator also faces problems when small farmers exercise opportunistic behaviour by misuse of the inputs supplied, consumption of part of the production or even side-selling to a third party, since feed conversion ratios (FCRs) are not at present adopted. External factors beyond the control of smallholders include delayed payment from the integrator, and abnormal price hikes in poultry feed and medicines. However, given the external factors that could undermine the system, ABFL is a successful CF story.

3.6 POLICY IMPLICATIONS AND CONCLUSIONS

The future outlook is positive for the Bangladesh poultry industry because the demand for poultry products is expected to increase, given its current low level of per capita consumption and the anticipated growth in population and household incomes. To compete, the industry must pursue production and marketing efficiency and the government must provide an environment that is conducive to the improvement of productivity. This chapter has shown that the contract poultry farming system in Bangladesh:

- is dominated by smallholders;
- is potentially a way of overcoming market imperfections, minimizing transaction costs and gaining market access for smallholders;

- has benefits including access to credit and technology, better risk management and enhanced family employment opportunities;
- increases productivity, profitability and efficiency and is a win-win situation.

Thus, CF could be an authentic way to produce quality poultry products and has the potential to be adopted extensively throughout Bangladesh to meet domestic meat requirements and generate export market potential.

Nevertheless, CF is not a mechanism to solve all production and marketing-related problems of poultry farms. It could be a way to minimize problems of capital, quality inputs, modern technology adoption and output marketing for small farms. ABFL's present contract poultry farming system has provided access to quality input and modern technologies by minimizing transaction costs within the value chains. Better institutional development may make smaller farmers more desirable partners for firms since many transaction costs that prevent them from contracting are a result of weak institutions. For example, if markets for information were better developed, farmers could directly access important production information rather than relying on the firm and its high fixed costs of extension services. Some of the barriers to the participation of smaller farmers in CF systems could be reduced through changes in the institutional structure of CF itself.

It is suggested that to increase poultry production and develop the poultry industry, the government and other private integrators should take initiatives to establish an effective and well-organized CF system in Bangladesh. However, successful CF implementation depends on the coordination and collaboration of both integrator and contract farmer. Favourable attitudes of the government towards the provision of incentives and policy supports are also essential factors for success.

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